A3

--33) (New) The apparatus according to claim 10, wherein the means for correlating determines one or more locations of ~~the~~ rope degradation.--.

REMARKS

Applicants request reconsideration of the subject application in view of the foregoing amendments and the following remarks.

Claims 1-33 are pending, of which claims 21-31 have been withdrawn. Claims 1-20 and 32 are amended herein to even more clearly define the invention in a manner that distinguishes over the art. Claim 33 is newly presented to provide a scope of protection commensurate with the original disclosure. No new matter has been added.

The title has been amended as required.

Claims 1-4, 6-12 and 32 stand rejected under 35 USC § 102(b) as allegedly being anticipated by U.S. Patent No. 4,864,233 (Harrison). Claims 1, 2, 4, 6-12 and 14-20 stand rejected under § 102(b) as allegedly being anticipated by U.S. Patent No. 4,427,940 (Hirama et al.). Claims 5 and 13 stand rejected under 35 USC § 103(a) as allegedly being unpatentable over Hirama et al. These rejections are respectfully traversed, and reconsideration is requested.

Independent claim 1 recites a method of detecting degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely. Independent claims 4 and 6 each recites a method of detecting and locating degradation of a rope comprising a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely. Each of these method relates to, inter alia, applying a magnetic field to a portion of the cord members via a pair of magnetic poles positioned adjacent to the body of the rope and spaced longitudinally relative to the rope, and monitoring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic field. Independent claim 10 recites an apparatus for detecting degradation

of a rope comprising a rope body of non-ferromagnetic insulator material encasing at least one longitudinally extended ferromagnetic component. The apparatus includes, inter alia, a detector body comprising rope guide means, a magnet fixed with respect to the body and comprising a pair of magnetic poles located adjacent the rope body and spaced longitudinally relative to the rope when the rope is guided along the detector body by the rope guide means, and magnetic flux sensing means mounted with respect to the detector body at a position between the poles for monitoring magnetic flux emanating from the ferromagnetic component out through the rope body and associated with the magnetic field.

In Harrison, on the other hand, there is disclosed an apparatus wherein conveyor belt cords are first de-gaussed to remove any stray magnetic fields, and then longitudinal unidirectionally magnetized. The belt is then magnetically scanned and the electrical output signal is passed through a low pass filter in order to produce a break signal indicative of breaks in the magnetically permeable cords of the conveyor belt.

Thus, Harrison fails to disclose or suggest at least the claimed feature relating to monitoring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members. Further, there is no suggestion that such an arrangement could be achieved with the device disclosed in Harrison.

In Hirama et al., an electromagnetic inspecting apparatus is disclosed for electromagnetically detecting a defect present in a magnetizable wire rope moving in its longitudinal direction. The apparatus comprises first and second opposite-polarity magnetic poles disposed opposite to the elongate magnetic member and spaced apart by a predetermined longitudinal distance, a detecting core disposed opposite to the magnetizable wire rope at a position intermediate between the first and second magnetic poles, a detecting coil wound around the detecting core to make a differential response to flows of leakage flux appearing due to the presence of a defect in the magnetizable wire rope thereby generating an electrical output signal indicative of the result of its response, and a yoke magnetically coupling the first and second magnetic poles and the detecting core at the portions remote from the elongate magnetic member. A guide groove for guiding the movement of said magnetizable wire rope in said longitudinal

direction is formed in each of said first and second magnetic poles and said detecting core at the surface opposite to said magnetizable wire rope.

Thus, Hirama et al. fails to disclose or suggest at least the claimed features regarding a monitored rope that includes a body of non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, a magnetic field that is applied to a portion of the cord members by a pair of magnetic poles positioned adjacent to the body of the rope, and monitoring magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic field. Further, there is no suggestion that the device disclosed in Hirama et al. could be used in such a manner. At column 3, line 10, Hirama et al. indicate:

> The elongate member of magnetic material, which is the wire rope 2 herein, has a circular cross-sectional shape, and, therefore, limited portions of the magnetic poles 6A, 6B and detecting core 9 are only opposed by the wire rope 2, resulting in a very large magnetic reluctance. *In order to ensure successful inspection*, U-shaped grooves 12A, 12B and 9A for guiding the movement of the wire rope 2 in its longitudinal direction are formed in the associated areas of the magnetic poles 6A, 6B and detecting core 9 respectively in practical use.
>
> (Emphasis added.)

Further, although different shaped ropes are discussed, in each case a groove is provided so that the detection can be ensured. At column 7, line 56, Hirama et al. indicate:

> While it is necessary to provide a groove in each of the cores in such a case, the shape of the grooves is naturally suitably selected depending on the external shape of a member for which the presence or absence of a defect is to be detected.

Therefore, whether considered individually or in combination, the cited art fails to disclose or suggest salient features recited in claims 1, 4, 6 and 10. Thus, claims 1, 4, 6 and 10 are submitted to be allowable over the art.

Independent claim 5 recites a method for approximating tension-load bearing capacity of a rope comprising a body of non-ferromagnetic insulator material in which a

plurality of longitudinally extended ferromagnetic cord members is distributed transversely. The method includes, inter alia, applying a magnetic field to a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, wherein the poles are spaced longitudinally relative to the rope, and measuring, at a position between the poles along a longitudinal direction of the rope, magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic field.

From the foregoing discussion of claims 1, 4, 6 and 10, it is apparent that Hirama et al. fails to disclose or suggest such claimed features as a rope including a non-ferromagnetic insulator material in which a plurality of longitudinally extended ferromagnetic cord members is distributed transversely, applying a magnetic field to a portion of the cord members by positioning a pair of magnetic poles adjacent to the body of the rope, and measuring magnetic flux emanating from the cord members out through the body of the rope and associated with the magnetic field.

Therefore, whether considered individually or in combination, the cited art fails to disclose or suggest salient features recited in claim 5. Thus, claim 5 is submitted to be allowable over the art.

Claim 32 recites a monitoring system for monitoring the approximate load-bearing capacity of an elevator rope which has a longitudinally-extended load-bearing element that supports the tension loads of the elevator system and a jacket that encompasses the load-bearing element. The system includes, inter alia, excitation means for exciting said load-bearing element in a manner such that said jacket is not subject to excitation, and monitoring means for monitoring the level of excitation of said load-bearing element.

Harrison is not understood to disclose or suggest at least the claimed features relating to load-bearing capacity of a rope that includes an encompassed load-bearing element. As noted, Hirama et al. fails to disclose or suggest that the device disclosed therein has any capabilities regarding an encompassed element.

Therefore, whether considered individually or in combination, the cited art fails to disclose or suggest salient features recited in claim 32. Thus, claim 32 is submitted to be allowable over the art.

The dependent claims, which are submitted to be allowable for the same reasons, also include features in addition to those recited in their respective base claims. Further independent consideration of the dependent claims is requested.

Please charge any deficiency in fees associated with filing this response to our Deposit Account No. 15-0750, Order No. OT-4465.

Respectfully submitted,

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